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Corynespora titarpaniensis sp. nov., on *Lepidagathis* from Central India

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Abstract—A new asexual fungus *Corynespora titarpaniensis*, discovered on *Lepidagathis* sp. (*Acanthaceae*) from Madhya Pradesh, India, is described, illustrated, and compared with closely similar species.

Key words—biodiversity, *Corynesporascaceae*, foliar diseases, phytopathogenic fungi, taxonomy

Introduction

Corynespora was described by Güssow (1906), and almost 200 species have been recorded (Index Fungorum 2016). Indian mycologists have described several novel species in the past 15 years (Dubey & Rai 2003; Jain et al. 2002; Kumar et al. 2007, 2008, 2012, 2013; Meenu & Kamal 1998; Meenu et al. 1997, 1998; Pal et al. 2007; Sharma et al. 2002a,b, 2003, 2005; Singh & Kamal 2012; Singh et al. 2000a,b, 2007a,b, 2013, 2014; Verma et al. 2008). Synoptic tables for the main morphological features of *Corynespora* spp. have been provided by McKenzie (2010) and Siboe et al. (1999).

In 2016, during routine survey for foliicolous fungi, an interesting fungus causing a serious disease was collected on living leaves of *Lepidagathis* sp. from a village in Madhya Pradesh. Based on morphological characteristics such as

colouration and septation in conidia and conidiophores, as well as mode of conidial ontogeny, this fungus was assigned as a new species of *Corynespora*. A detailed description and illustrations of the new fungus are presented here.

Materials & methods

Fresh leaf specimens with disease symptoms were collected during the course of field trips. The samples were placed in zip-lock polythene bags, taken to the laboratory, and treated according to Castañeda-Ruíz (2005). Detailed observations of morphological characters were carried out using a Leica light microscope. Specimens were prepared for microscopical observation by hand sectioning and scraping; the sections were mounted in lactophenol cotton-blue. Measurements were made of 30 conidia, hila, and conidiophores. Line drawings were prepared at a magnification of 400×. Photographs of colonies on leaves and microphotographs of fungal propagules were taken using a Sony DSC-5730 camera. The holotype is deposited in the Ajrekar Mycological Herbarium, Ajrekar Research Institute (ARI), Pune, India (AMH), and isotype material is deposited in the Mycological Herbarium of the Department of Botany of Dr. Harisingh Gour University Sagar, M.P., India (MH-DHSGU).

Corynespora titarpaniensis P. Kushwaha, Raghv. Singh & Sh. Kumar, **sp. nov.** Figs 1–4

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Differs from *Corynespora barleriicola* and *C. peristrophicola* by its larger, solitary conidia with more numerous septa.

Type: India, Madhya Pradesh, Sagar, Deori, Titarpani village, 23.3898°N 79.0165°E, on living leaves of *Lepidagathis* sp. (*Acanthaceae*), Jan. 2016, coll. Prakash Kushwaha (**Holotype,** AMH 9786; **isotype,** MH-DHSGU 188).

Etymology: Latin, *titarpaniensis*, referring to the type locality.

Infection spots amphigenous, scattered, initially circular to subcircular, 1–9 mm in diam., later becoming irregular and spreading over entire leaf surface, more or less necrotic, brown to blackish brown. Colonies amphiphyllous, effuse, brown to blackish brown. Mycelium internal, thin-walled, branched, smooth, brown to blackish brown. Stromata absent or rarely present. Conidiophores macronematous, arising singly or rarely in groups of 2–7, cylindrical, erect to procumbent, straight to flexuous, smooth, unbranched, thick-walled, 5–16-septate, constricted at septa, medium brown to blackish brown, 155–500 × 5–11.5 μm, with numerous successive cylindrical enteroblastic percurrent extensions, basal cell swollen. Conidiogenous cells monotretic, integrated, terminal, scars unthickened. Conidia solitary, smooth, simple, thin-walled, straight to slightly curved or wavy in margin, obclavate-cylindrical, apex obtuse to

Fig. 1. *Corynespora titarpaniensis* on *Lepidagathis* sp. a, b. Infected host plant. c, d. Infection spots on upper surface. e, f. Infection spots on lower surface. Scale bars = 10 mm.

rounded, 5–35-distoseptate with some transverse band-like eusepta, with some deep constrictions, 50–340 × 5–20 µm, olivaceous to light brown, hilum rounded to obconico-truncate, thickened, 3–5 µm diam.

Discussion—Two other *Corynespora* species have been described from acanthaceous hosts: *C. barleriicola* N. Sharma et al. and *C. peristrophicola* Raghv. Singh & Kamal. The conidia of *C. barleriicola* (41–246 × 10–18.5 µm,

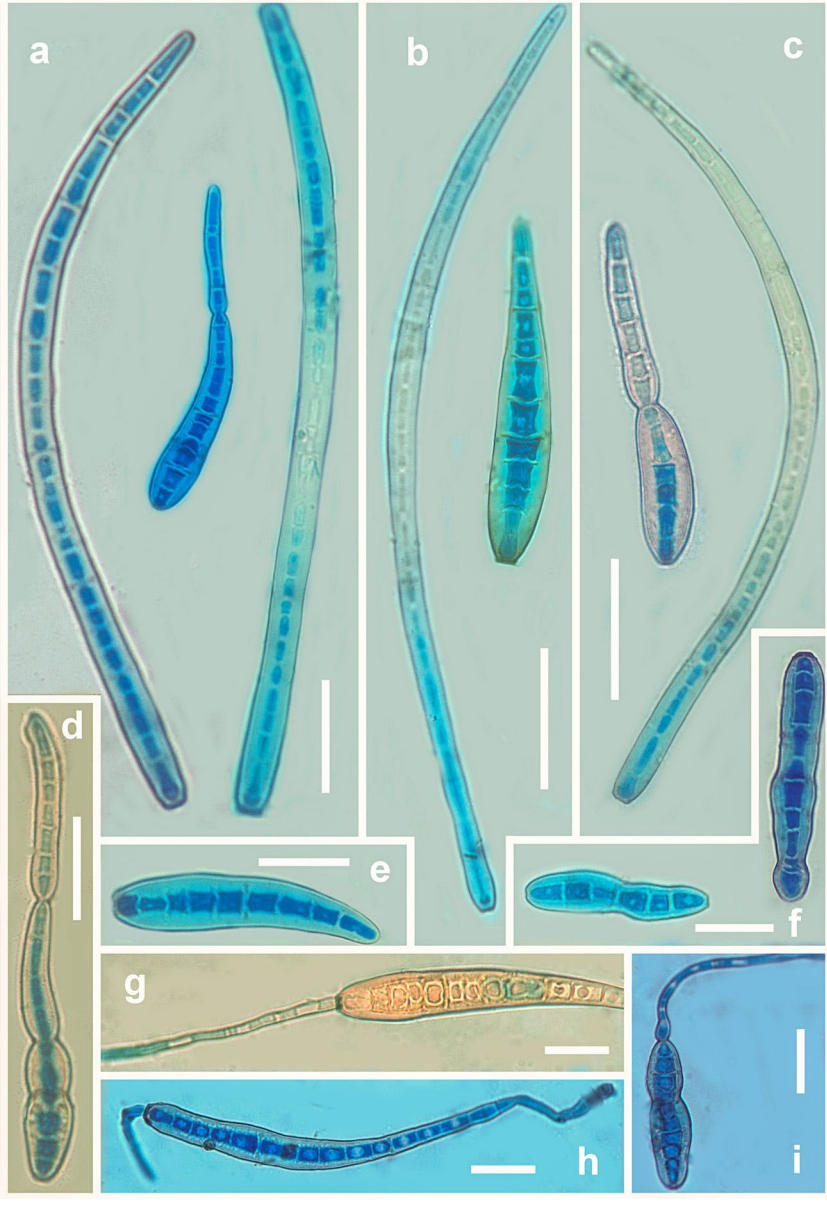

Fig. 2. *Corynespora titarpaniensis* (holotype, AMH 9786). a–f. Conidia. g–i. Germinating conidia. Scale bars: a–c = 50 µm; d–i = 20 µm.

Fig. 3. *Corynespora titarpaniensis* (holotype, AMH 9786). a. Solitary conidiophore. b. Conidiophores in fascicle. c–e. Bulbous basal cell of conidiophores. f–h. Developing conidia at conidiogenous loci. Scale bars: a, b = 50 µm; c, d = 20 µm; e–h = 40 µm.

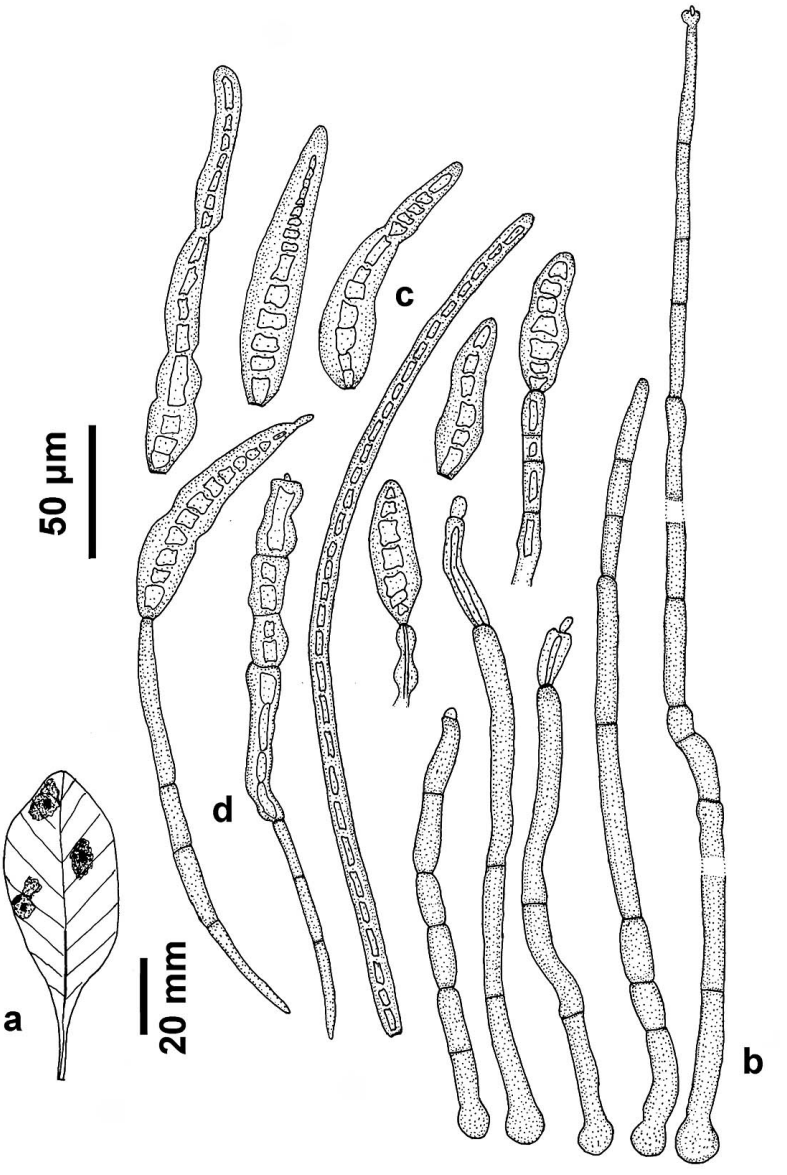

Fig. 4. *Corynespora titarpaniensis* (holotype, AMH 9786).
a. Infection spots. b. Conidiophores. c. Conidia. d. Germinating conidia.

3–14-septate; Sharma et al. 2002b) and *C. peristrophicola* (60–135 × 5–16 µm, 5–12-septate; Singh & Kamal 2012) are catenate and shorter and have fewer septa than those of *C. titarpaniensis*.

The conidia of *C. azadirachtiana* N. Sharma et al. (32–303.5 × 7–21.5 µm, 1–20-septate; Sharma et al. 2002b), *C. colebrookiana* N. Sharma et al. (45–330 × 6–22 µm, 4–16-septate; Sharma et al. 2002b), *C. catharanthicola* Z.D. Jiang & P.K. Chi (140–310 × 5.5–11 µm, 4–25-septate; Chi 1994) and *C. proliferata* Loer. (30–300 × 9–12 µm, 3–17-septate; Loerakker 1975) are catenate and have fewer septa than *C. titarpaniensis*.

Corynespora leucaenae N. Sharma et al. (16–298 × 10–19 µm, 1–28-septate; Sharma et al. 2003), *C. trematicola* N. Sharma et al. (104–296 × 11–16 µm, 1–12-septate; Sharma et al. 2002a, as "*tremicola*") and *C. longispora* A.K. Sarbhoy & Saikia (120–330 × 5.5–8 µm, 11–24-septate; Saikia & Sarbhoy 1981) also have conidia similar to those of *C. titarpaniensis* but differ by having fewer septa.

The conidia of *C. smithii* (Berk. & Broome) M.B. Ellis (70–410 × 12–19 µm, 7–45-septate; Ellis 1957) and *C. viticus* Y.L. Guo (80–383 × 6–9 µm, multiseptate; Guo 1984) appear close to *C. titarpaniensis* but differ by their catenate, cylindrical, longer, thick-walled conidia with more septa.

The new species also resembles *C. rhododendri* K. Zhang & X.G. Zhang, which differs by its much longer, thinner, obclavate to long rostrate conidia (180–400 × 7.5–11 µm, 19–36-septate; Zhang et al. 2008).

Another similar species, *C. micheliae* Z.Q. Shang & X.G. Zhang differs from *C. titarpaniensis* by its rostrate conidia (333–360 × 15–19 µm, 12–28-septate) with its upper cells gradually tapering to a narrow apex, a wider hilum (6–7 µm), and a darker brown lower cell; and by its shorter, wider conidiophores (190–210 × 9–19 µm; Shang & Zhang 2007).

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